

SACHITA NISHAL

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EDUCATION

Birla Institute of Technology and Science (BITS), Pilani, India

Aug '16 - Present

Bachelor of Engineering (Honours), Computer Science

Current GPA : 7.83

Divine Child High School, Surat

Graduated May '16

Central Board of Secondary Education (Science) Class 12

Overall Percentage: 97.2

RESEARCH PROJECTS AND INTERNSHIPS

Research Intern, Indian Institute of Science Bangalore

Dec '18 - Present

- Working under [Dr. Rajiv Kumar Chaturvedi](#) and [Dr. Jaideep Joshi](#) to predict burnt area from forest fires, for global latitudes and longitudes
- Currently designing a Long Short Term Memory model (LSTM) for prediction, which uses satellite data of several climatic and geographical variables.

Undergraduate Study Project, BITS Pilani (Goa)

Jan '18 - Dec '18

- Working under [Dr. Sukanta Mondal](#) to study network biomarkers and machine learning algorithms for disease classification.
- Pre-processed data using Shannon's Entropy combined with PCA, and designed an Artificial Neural Network for classification of multi-class genetic expression data for lung cancer.
- Achieved an accuracy of 87% on data so far, with improvements underway.

Research Intern, Indian Institute of Technology, Madras

May '18 - July '18

- Worked under [Dr. Karthik Raman](#) on using machine learning techniques for the prediction of protein-ligand binding affinities, for applications in drug design.
- Carried out a study of pre-existing methods that input 3D structural data of ligand-receptor complexes to convolutional neural networks (CNNs) for predictions.
- Replicated several types of regression-based and classification-based CNNs from papers, using Tensorflow and PyTorch.

Undergraduate Study Project, BITS Pilani (Goa)

Aug '17 - Dec '17

- Worked under [Dr. Toby Joseph](#) to simulate the workings of the inner ear in humans, and reproduce its features qualitatively.
- Modelled the inner ear hair cell as an RC circuit; the basilar membrane as a nonlinear damped oscillator, and neurotransmitter release at synapses as a Poisson process. Used MATLAB.

Research Intern, Indian Institute of Science Education and Research, Pune *May '17 - July '17*

- Worked under [Dr. Sutirth Dey](#) to create evolutionary models of randomised genetic and epigenetic mutations in Wright-Fischer populations.
- Designed a quantitative model in Python to account for mutations in gene pool. Graphed the resulting evolutionary dynamics to further the understanding of interplay of genetic and epigenetic factors in population fitness.

AWARDS AND SCHOLARSHIPS

Summer Internship Award (SIA) 2018

May '18

- Received from BITS Pilani to pursue independent research activities in May-July 2018
- Approximately 8% of applicants were selected, based on scholastic excellence, research potential and student proactivity

LIST OF PUBLICATIONS AND POSTERS

Minimal Modelling of Primary Auditory Neuron Behaviour Synapsing to Inner Hair Cells

- Project poster presented by Project In-Charge Dr. Toby Joseph at the 5th Complex Dynamical Systems and Applications Conference (CDSA 2017) at IIT - Guwahati

RELEVANT COURSEWORK

Courses taken at BITS Pilani:

Probability and Statistics
Linear Algebra and its Applications
Data Structures and Algorithms
Linguistics
Neural Networks and Fuzzy Logic

Courses taken on MOOC platforms:

Neural Networks and Deep Learning [[certificate](#)]
Structuring Machine Learning Projects [[certificate](#)]
Improving Deep Neural Nets: Hyperparameter Tuning, Regularization and Optimisation [[certificate](#)]
Introduction to Genetics and Evolution [[certificate](#)]
Natural Language Processing [[ongoing](#)]
Social and Economic Networks: Models and Analysis [[ongoing](#)]

TEACHING AND MENTORING

Teaching Assistant for Environment, Development and Climate Change *Aug '18 - Dec '18*

- Assisted [Dr. Rajiv Kumar Chaturvedi](#), BITS Pilani, Goa
- Designed and helped to evaluate assignments to gauge how students understood issues concerning climate change and climate policy in India [[certificate](#)]

Organizing Team, Writer for [The BITS R&D Blog](#), BITS Pilani, Goa *Jan '18 - Present*

- Part of the student team that created and maintains this public blog. It extensively details the academic and research endeavours of BITS students and alumni.

SKILLS AND ADDITIONAL QUALIFICATIONS

Programming Languages: Python 3, R, Java, C/C++, MATLAB

Libraries/Tools: Tensorflow, PyTorch, Numpy, Pandas, Keras, Scikit-Learn, Matplotlib, Seaborn, Latex